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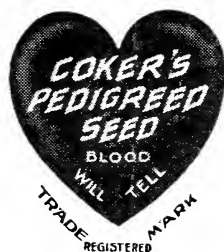
Pedigreed Seed Company

HARTSVILLE · SOUTH CAROLINA

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EDUCATIONAL BULLETIN No. 24



ASPARAGUS CULTURE *and* VARIETIES

by

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TO OUR PATRONS

The Pedigreed Seed Company is not an ordinary seed company. We are plant breeders and specialists. We do not buy or sell ordinary seeds of all sorts but handle primarily only seeds of crops that we are breeding and improving by the most careful methods known.

The most painstaking and careful breeding work that has ever been conducted with asparagus was that carried out by Professor J. B. Norton while connected with the U. S. Department of Agriculture. As a result of this work, Mr. Norton originated and introduced the strain or variety known as Washington asparagus. Asparagus is a dioecious plant, the male and female flowers being found on separate plants. Washington was the name given to the finest male plant found in the investigations, and Martha and Mary were names given to the finest female plants found. The pedigreed offspring from these highly select male and female plants are known as Martha Washington and Mary Washington and these strains are recognized as the most superior strains of asparagus now grown.

In starting the work of asparagus breeding several years ago this Company obtained the best pedigreed stock direct from the Department of Agriculture and we have continued our breeding by the same method so that the pedigree of our stock dates back and connects with those of the U. S. Department of Agriculture. This breeding is designed primarily to eliminate asparagus rust, which is the most destructive disease known to this plant. Since that time this work has been accorded a great deal of credit for the success which has been attained in eradicating asparagus rust as a factor in the commercial production of this vegetable. As a result we daily receive inquiries requesting information as to the variety we recommend, where the seed and roots can be procured, and what methods of culture our experience has taught us to be best. While we are prepared to answer these questions promptly, cheerfully and fully, yet we feel that considerable time will be saved to our customers and their interests better served by furnishing them in pamphlet form such information and suggestions as our experience has taught will be of most value to them in the cultivation and production of asparagus. That is the purpose of this little bulletin which we have gotten up as briefly and concisely as possible, considering the volume of questions contained in the hundreds of inquiries we receive.

The success and interest in our work has been such that at the beginning of this year we, fortunately, were able to secure the services of Professor Norton, and this bulletin is prepared by him and contains the results of his knowledge and experience.

PEDIGREED SEED COMPANY
HARTSVILLE, S. C.

ASPARAGUS VARIETIES AND CULTURE

By Professor J. B. NORTON

Plant Breeder and Asparagus Specialist, Pedigreed Seed Company.

WHY GROW ASPARAGUS?

An asparagus bed is an essential part of every well-planned home garden. It provides an early spring vegetable of highest quality at a low cost once the bed is established. Canned asparagus cannot compare with the fresh shoots cut in the cool of the morning from your own garden and properly cooked without having wilted or having been kept standing in water. So-called fresh asparagus—often shipped across the continent in better condition than the wilted mess from a nearby trucker—does not meet the requirements of a discriminating housewife. No other vegetable known to the writer has the distinctive flavor, quality, tenderness and individuality found in fresh asparagus.

No matter how small your garden, you can afford to put in a few asparagus plants along one side. Where no vegetable garden is maintained, the flower border or fence row will be improved by several asparagus plants which, after they have furnished food in early spring, will add their dark, feathery foliage to the summer ornamentals and in fall will enrich the scenery with their handsome scarlet berries.

Many people think they cannot have a garden on account of their own or more often their neighbor's chickens. However, asparagus is chicken proof. These two essentials to good living will thrive together as a happy family. The lover of pedigreed poultry can safely go in for pedigreed asparagus and derive a double return from his land.

Although asparagus likes good care and cultivation, it can be neglected for years after it is once established and still respond to fertilizer and cultivation once more with its accustomed high yields. Asparagus is one crop that does not have to be planted every year.

To those accustomed to asparagus beds in their garden, arguments in favor of this delicious vegetable are needless. Their interest is in suggestions as to the possible betterments of their present bed or in its renewal with a better strain.

WHAT KIND OF ASPARAGUS TO GROW.

After many years work on all sides of the asparagus question, in the writer's judgment the most important thing to decide before putting in a bed of asparagus is that of kind. More than anything else does this affect the relative success of the gardener's efforts. Under this head are grouped not only variety and strain but the size, character, and vitality of the crowns planted. Until recently any advice relative to variety was as reliable as political news before an election. Names in seed catalogues meant little or nothing, and until the work of asparagus breeding was taken up in 1908 by the U. S. Bureau of Plant Industry there was no such thing as a real variety of asparagus. This fact is strange when we think that asparagus is one of the oldest vegetables. As a table luxury it has deservedly enjoyed a wide popularity for ages. Its native home is probably in Southwest Asia, near the site of the beginning of our civilization. Undoubtedly asparagus was part of the food of early man when his vegetable dietary included wild shoots, roots and fruits, before he began to cultivate anything in his garden. The origin of the name "Asparagus" is lost in antiquity. The Greeks took the name with the plant from some Asiatic neighbor and passed it on to succeeding civilizations. Southwest Asia still has wild plants of asparagus, identical with those of our gardens, and equalling in size the ordinary garden plants. Before the beginning of the Christian era, Roman gardeners grew asparagus that weighed three stalks to the pound. It seems strange that we have not greatly improved on this record,

but a search of the history of asparagus work of the past shows no systematic effort at pedigreed breeding until the work undertaken by the writer in 1908 for the U. S. Department of Agriculture.

This lack of improved varieties is due to the fact that asparagus has the male and female flowers on distinct plants. This character is rare among our common food plants, and when found it is usually connected with a crop of variable characteristics, little improved from the wild type. The asparagus varieties offered by most dealers are made up of a mixture of types which, by their variability, show a complete lack of breeding and usually an utter lack of selection. The names Argenteuil, Palmetto, Reading Giant, etc., are more properly associated with an asparagus growing region rather than with any fixed type. To the writer's personal knowledge, there are thousands of pounds of seed of a well known Southern strain sold to the trade when it is practically impossible to find that strain listed in any seed catalogues. While this strain is probably better than the original stock of the common varieties listed by the trade, it is unfair to the consumer to sell him something that he cannot tell by any future tests from the variety he thought he was going to get.

Since asparagus rust was introduced into this country from Europe in 1895, the old strains commonly grown before that time have practically disappeared,



Fig. 1—The effect of several attacks of asparagus rust on a susceptible variety (right) and on a resistant strain (left). Selection from the best females of this resistant variety were used in the production of Washington Asparagus. (From U. S. Dept. of Agric.)

although the names have remained. Their place has been taken by European strains that were developed under rust conditions and as a result are more or less resistant to rust. One great fault that these varieties have, from the American viewpoint, is their tendency to make poor green asparagus, many of the stalks branching out close to the ground before they grow up far enough to make a merchantable stalk. The stalks are apt to be tough, irregular, and poor in color. When the writer took up breeding work with asparagus in connection with rust control the basic principle on which selections were made was high net profit under rust conditions (Fig. 1). In the breeding campaign undertaken at Concord, Mass., millions of plants were examined in a search for those that gave high yielding rust resistant progeny of the best market quality. In this search one good male plant was found, and on this plant the different strains of Washington asparagus were founded (Figs. 2 and 3). This

one male plant is the ancestor of all Washington asparagus, and it is through its high transmitting power that we now have a real pedigreed asparagus that is better than the "scrub" asparagus hitherto planted. Many good female plants were tested and one was selected on account of its production of very rust resistant seedlings when crossed with the Washington male. This female plant was named Martha, and from its pedigreed progeny Martha Washington rust resistant asparagus came. Later in the course of the investigation another female plant was found that was ideal in type, almost as good a female plant as Washington is a good male plant. This plant crossed with Washington makes an ideal strain which the writer considers good enough to mark the culmination of his asparagus breeding work at least for the present. This plant was named "Mary," and its pedigreed offspring with "Washington" are known as Mary Washington, which is the largest, most prolific, and highest grade asparagus known to the trade. The parent plants of these strains have been transferred to the government experimental farm at Arlington, Va., where they now grow in an isolated plot on Martha Washington's old farm.

ASPARAGUS VARIETIES.

With the exception of the pedigreed strains originated by the writer and a few strains produced by careful asparagus growers who select their best seed plants, there is no such thing as a variety of asparagus comparable to the



Fig 2—The effect of a severe attack of asparagus rust on the seedlings of a susceptible strain of asparagus. (From U. S. Dept. of Agric.)

pure types of other garden vegetables. The names used in catalogues, with one or two exceptions, cannot be identified in the marketed product. Columbian Mammoth White, on account of its lighter color when grown as green asparagus, can be identified in the field and market if from a pure stock. Argenteuil, Reading Giant and Palmetto, if secured from a reliable source, are usually quite rust resistant as compared with the older American strains, but in the market it is impossible to distinguish one from another. The difference in size, earliness and color is merely one of percentages. One strain has more early plants or more large shoots than another. No one can say definitely what name should be given to any individual plant.

Our pedigreed strains can be recognized in the field or market by their comparative uniformity of type. Even in our most highly bred and uniform pedigreed strains the variations due to mixed breeding of many generations is still present. For this reason the careful selection of seed and roots pursued by the Pedigreed Seed Company is necessary to keep up high quality.

After years of work with pedigreed strains of Washington asparagus, we have preserved two strains to use for breeding work. These can be described shortly as follows:

Pedigreed Washington Asparagus.—All of the plants in this strain are descendants of "Washington," the male plant on which all our pedigreed rust resistant asparagus is based. The original female plants were selected for the highest rust resistance vigor and quality from many hundreds of tested individuals. Selections from the best plants of "Martha Washington" and other of the best numbered strains of former years are combined in this improved form. By continued selection of the best plants from progeny rows, our seed fields are now composed of those individuals that produce large, straight shoots, dark green in color, with a heavy purple over-tone. The tips are tight and firm and do not open out or begin to branch until well out of ground. This makes this strain especially suited for "green" asparagus. This is the rust resistant strain developed by the writer while with the U. S. Department of Agriculture, but further selected and improved under his supervision by the Pedigreed Seed Company on their farms at Hartsville. As a standard variety for the production of fancy asparagus for the home or market it stands ahead of all of the so-called varieties in size, vigor, tenderness, quality and rust resistance. (See Figs. 4 and 5.)



Fig. 3—The effect of a severe attack of asparagus rust on seedlings of a strain of Pedigreed Washington Asparagus growing within ten feet of that in Fig. 2. This lot of seedlings was in the first test of the value of "Washington" as a breeding parent for rust resistant asparagus. (from U. S. Dept. of Agric.)

Pedigreed Mary Washington.—Among the many strains of Washington asparagus tested on our farms this one has stood out ahead of everything. When planted along side of the others, it can be told by its taller and much larger shoots of upright growth (Fig. 6). The following description taken from the Bureau of Plant Industry circular on Washington asparagus gives a fair description of this strain:

"**Mary Washington.**—The first-generation offspring of A5-11, Mary, pollinated with A7-83, Washington. This progeny lot has the largest seed and the largest seedlings of any combination yet tested. This size holds as the plants mature, so that anyone can pick out rows of this strain in our test fields without difficulty. The shoots are very large on the average, with a tendency to be oval in cross section; scarcely less high in color than Martha Washington, very early and prolific. The high-branching habit of this strain makes it possible to cut unbranched shoots with good tight buds as

much as two feet long. The branches of the mature shoots after they grow up are much less spreading than those of ordinary asparagus. While not as rust resistant as Martha Washington, this strain suffers no appreciable loss under severe rust conditions."

This strain is so much better than any other asparagus known to the writer that it seems in a class by itself. Our seed field is carefully isolated, even from other Washington asparagus, and every plant in it is carefully selected first-generation offspring of the two parent plants. The seed from this field is the highest pedigreed vegetable seed that we know of being offered to the trade. Where possible, stock from this strain should be isolated from other kinds and used for seed production in order to establish this new asparagus as rapidly

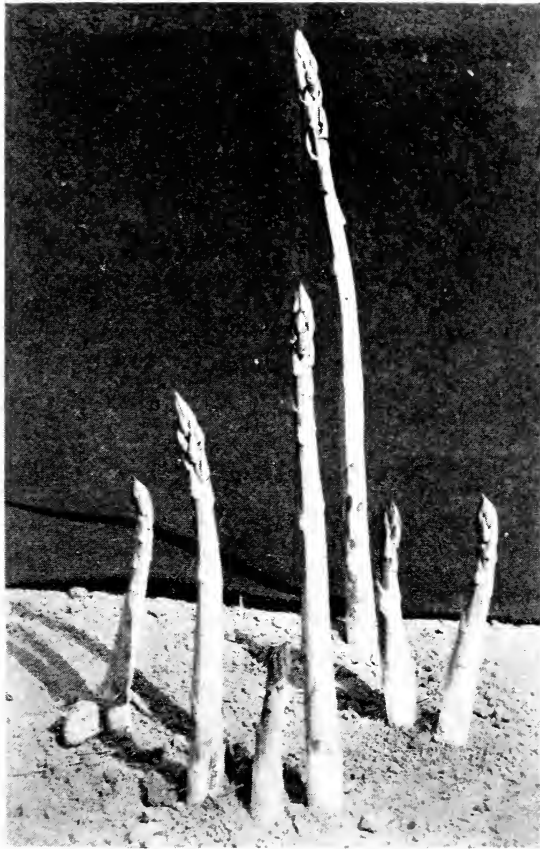


Fig. 4—A plant of Pedigreed Washington Asparagus starting growth in the spring. These stalks are over an inch in diameter. Note the long, clean growth of the shoots. Asparagus of this type makes good green asparagus of fine appearance and commands the highest price.

as possible. Careful selection will be necessary to keep up the high quality of this strain, and seed should be saved from only the very best plants.

Reselection for Rust Resistance.—So far the writer has found no asparagus plant immune to the attacks of asparagus rust. Our best plants, when subjected to a severe attack, develop a certain amount of rust. When an old bed is not cut clean during the spring or when a new bed is planted near an older one and not cut for a year or so the rust attack is apt to be more severe than usual.

When this occurs we are able to select seed only from the more resistant plants in our breeding fields. In this way we secure a smaller amount of more valuable seed. Our reselected rust resistant Washington asparagus costs us more, but is of much higher grade than that from the fields where the rust attack was too mild to allow a careful selection for rust resistance.

PLANNING AN ASPARAGUS PLANTING.

In planning an asparagus planting either for home use or for market production, the grower should take into consideration the various factors of soil, culture, etc., that are liable to affect the success of his venture. Many circulars, bulletins and books have been written on the subject. The following cult-



Fig. 5—The same plant shown in Fig. 4 but in a later stage of growth. Stalks that do not branch close to the ground indicate rapid growing tender shoots, desirable for green asparagus. This isolated female plant is being used as a pedigreed seed parent in continuing our breeding work.

ural directions have been taken largely from the most recent government publication, Farmers' Bulletin No. 829—Asparagus, and the circular by the writer on Washington Asparagus. As it is impossible to cover all variations in local conditions, the reader is advised to consult the most successful asparagus grower in his region as to methods and practices best suited for his local conditions.

SOILS FOR ASPARAGUS AND THEIR PREPARATION.

Asparagus can be grown on nearly all kinds of soils, but a sandy loam is preferred. Some of the muck lands of California, however, are considered ideal. In growing asparagus for home use the type of soil is not as important as a

convenient location for the bed. As a rule, the home supply of asparagus is grown in the garden, which should be located near the house.

For the commercial planting of asparagus a light soil should be selected, because of its earliness and the ease with which the crop can be cultivated. If the soil is not naturally deep and well drained it should be deeply plowed, sub-soiled, and drained by means of tile or open ditches. On land that does not wash badly the soil should be plowed in the autumn or winter in order to get the benefit of freezing and thawing. Where there is danger of serious erosion, plowing should not be done until spring. Before planting, the soil should be thoroughly pulverized by disking, harrowing, and planking or rolling. Stirring at frequent intervals until the asparagus is planted will keep down weeds and hold the soil in a loose, friable condition.

MANURES AND FERTILIZERS.

As asparagus is grown mostly on soils deficient in humus, barnyard or stable manure is the most suitable fertilizer. The manure adds both plant food and humus and increases the water-holding capacity of the soil. Where coarse manure is used on land to be planted to asparagus it should be applied broadcast at the rate of 20 to 40 tons per acre and plowed under, preferably in the fall. Well rotted manure is usually applied after the land is plowed, and then thoroughly mixed with the soil by harrowing.

Where no manure is available it is a good plan to plow under some green crop during the season preceding the planting of the asparagus. Some leguminous crop, such as cowpeas, soy beans, or clover, should be plowed under if practicable, as these crops furnish both humus and nitrogen. Rye, oats, or any other grain crop will furnish humus and may be used where it is impracticable to grow a legume. The grain crops, however, do not furnish plant food that was not already in the soil.

In addition to the manure or cover crop it is advisable to use some commercial fertilizer, especially one furnishing phosphorus and potash. The manure does not furnish sufficient phosphorus and potash, and the cover crops where legumes are used do not provide any plant food except nitrogen. For an average asparagus soil 100 to 150 pounds of nitrate of soda, 500 to 1,000 pounds of 16 per cent acid phosphate, and 150 to 300 pounds of muriate of potash to the acre will give good results when applied in connection with manure or leguminous crops. Where no manure or leguminous cover crop is turned under, some additional nitrogen should be used in the form of cottonseed meal, tankage, dried blood, or fish scrap. The nitrate of soda furnishes available nitrogen for early growth and the organic fertilizers supply the nitrogen for later needs. If the soil is light, as frequently occurs in the South, a much larger amount of nitrate of soda may be desirable.

In using large quantities of commercial fertilizers (1,000 pounds or more per acre) before planting the asparagus, it is best to apply it broadcast. For amounts under 1,000 pounds it might be best to apply the fertilizer in the row or in a strip along the row. In either case the fertilizer should be thoroughly mixed with the soil by harrowing or cultivating.

After the asparagus plantation is established it should be fertilized every year. A common practice among market gardeners is to apply 20 to 40 tons of manure



Fig. 6—An ideal shoot of Pedigreed Mary Washington Asparagus. This shoot was nearly two inches in diameter. For highest grade green asparagus this type is far superior to the ordinary strains developed in Europe for growing bleached asparagus.

to the acre broadcast over the bed during the autumn or winter. This manure is usually disked into the soil early in the spring. In addition to the manure many growers apply nitrate of soda broadcast at the rate of 200 pounds or more to the acre. This practice is of doubtful value, as most of the plant food used in producing asparagus shoots is stored in the roots during the preceding season's growth. A better practice is to apply a good complete fertilizer at the rate of 1,000 to 1,500 pounds per acre at the end of the cutting season. For this application a fertilizer containing 2 to 4 per cent of nitrogen, 6 to 8 per cent of phosphoric acid, and 6 to 8 per cent of potash will give good results. Muriate of potash and kainit are preferable to sulphate of potash. Where the land is heavily manured the nitrogen may be left out of the fertilizer mixture. The fertilizer applied at the end of the cutting season should be distributed broadcast over the bed or in a strip on either side of the row and thoroughly mixed with the surface soils by harrowing or cultivating. It should be borne in mind that no amount of commercial fertilizer will make up for a deficiency in humus; in fact, large quantities of fertilizers are justified only where the soil is well supplied with humus.

It has long been believed by many growers that common salt is essential in asparagus growing. This belief is undoubtedly due to the fact that wild asparagus grows along the seacoast in soils containing considerable salt. Some growers and investigators believe that the chlorin in the salt is the valuable element, and this belief is apparently borne out by the fact that muriate of potash gives better results on asparagus than sulphate of potash. Where either muriate of potash or kainit is used, salt is not necessary, but in the absence of one of these it is advisable to apply 300 to 400 pounds of salt to the acre.

PLANTING ASPARAGUS SEED.

Unless familiar with the growing of asparagus seedlings the small grower will find it easier and safer to buy enough well selected one year old roots to plant his asparagus bed. The following directions for planting seed, cultivating and caring for seedlings, gives the latest suggestions based on our past experiences. Seed should be sown very early in spring. It takes so long to come up that weeds are very likely to get a start ahead of it. For this reason a clean seed bed is needed. Quack-grass, Bermuda grass or other plants with rhizomes should not be present, as their removal later is likely to destroy the young asparagus seedlings. The land should be rich and light, equal to the best garden or truck soil in richness and texture. Perfectly uniform land is best, as the variation in seedlings on variable land will render selection at digging time more difficult. A small percentage of radish seed might be added to mark the row for cultivation before the asparagus seedlings show. In most regions it is safe to plan on five or six plants to the foot. Closer planting is apt to produce a tangled mass of roots hard to separate. The seed should be sown in rows 15 to 18 inches apart for hand cultivation and 2½ to 3 or even 4 feet apart if horse cultivation is to be given, and it should be covered to the depth of 1½ to 2 inches. In our work we either drop seed by hand or, when in quantity, sow with a Columbia hand planter, which spaces each seed. If two or more seeds fall together, they are sure to make a tangle, and thinning is not recommended. The seed bed should be quite uniform to produce the best results in grading the roots after digging. Cultivation between the rows with hand cultivators or scuffle hoes is best when, as in the North, the rows are too close for horse cultivation. Weeds in the row should be removed by hand. The use of tools in the row should be avoided at all times. When the plants get up high enough a little dirt can be thrown up to the row to hold the shoots erect. At the end of the season allow the tops to die down and make a cover for holding snow in winter. In the North it is highly advisable that a layer of coarse hay or straw similar to that applied to strawberries be put on after the ground has frozen; otherwise many of the roots will winterkill.

The grower is not advised to plant the seed in the permanent place in his garden. Our experience with this method has been uniformly unsatisfactory.

DIGGING ROOTS.

When planted in 18-inch rows one year old crowns can be thrown out of the ground with a good two-horse plow. Before plowing out the first row a furrow should be run about a foot away from the row to aid in freeing the roots. In light sandy soil, which is best suited for seedling production, a 6-tined short-handled manure fork is used in completing the work begun by the plow. The sand must be shaken out well and the roots thrown into windrows. It is most important that the plowing out be done before growth starts; otherwise much of the stored food of the roots will be crowded out into the young shoots, which

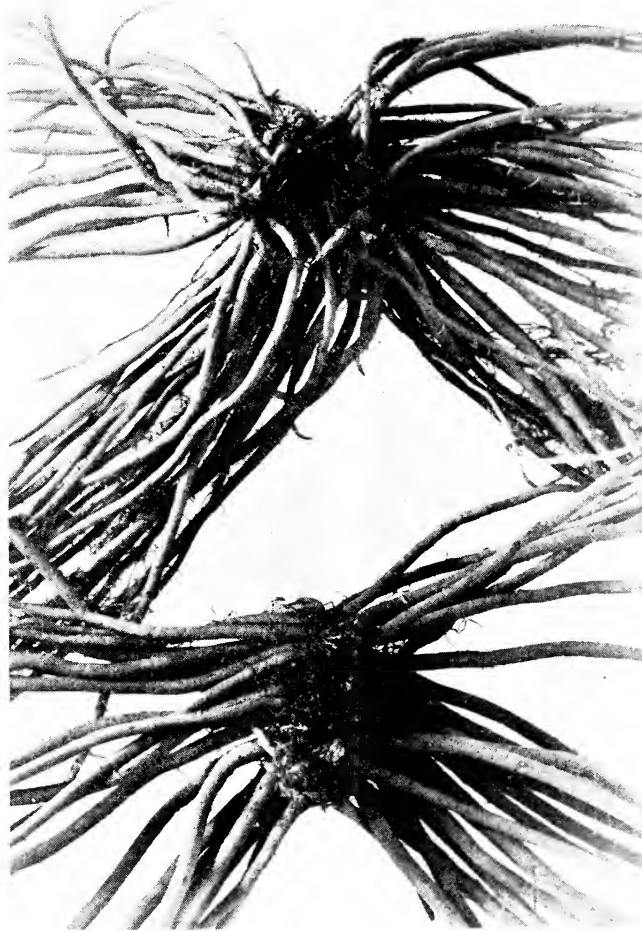


Fig. 7—Two one year old asparagus crowns. The lower one has a single bud cluster of large buds and represents the ideal type for planting. The upper crown is branched and has several clusters of small buds. It is apt to make a large number of smaller shoots.

are always broken off. It is a good idea to let the roots dry out more or less in the spring sun before storing them preliminary to planting, which often is not done for a month or more after digging. If dried down properly, the roots can be left in a cool storage place and kept away from soil moisture by dry trash or straw. Where available, a board floor or dry concrete platform is satisfactory. The best storage temperature is about 40 degrees F., but if the roots are not moist they will stand a higher temperature for a long time without serious loss.

In digging seedlings great pains should be taken to preserve unbroken and unbruised all the storage roots leading away from the crown, as these contain food supplies needed for the new growth. This is important in getting the new bed off with as little check as possible. The practice of trimming down these roots to a uniform length of 6 or 8 inches cannot be too strongly condemned.

As far as our experience goes, 1-year-old roots do better than 2-year-old roots of the same stock. The large 1-year-old roots selected from any seedling field are the best, in that they produce a higher percentage of giant asparagus much sooner than the small roots from the same field. Our planting for breeding work, even of pedigree stock, is now made from less than one out of ten roots as they run in the field (Fig. 7). Not more than half of the roots in the field should be saved for planting, all the small or broken roots being buried in the compost heap.

PLANTING ASPARAGUS ROOTS.

For best results spring planting is recommended for all sections of the country. While some writers or seed catalogues recommend fall planting in the South, we have found early spring to give satisfactory results. Fall planting is theoretically wrong from the standpoint of preparation, as it gives insufficient time to get the ground in good condition.

It has been found by experience that it is not advisable to plant a permanent bed on ground occupied by seedlings the year before. Likewise, for the best results seedlings should not be followed by another seedling bed.

After the soil has been thoroughly prepared, deep furrows are opened by running a turnplow two to four times where each row is to be located. The rows should be about 4 to 6 feet apart for green asparagus and 5 to 8 feet apart where white shoots are desired. The plants are set 15 inches to 2 or 2½ feet apart in the row, the greater distance being required for large growing varieties on soil very rich in nitrogen. The roots or crowns should be set in the bottom of the furrow and covered to the depth of 2 or 3 inches at first, and the trench gradually filled up as the plants develop. The depth of soil over the crowns finally should be 6 to 8 inches in light soils and 4 or 5 inches in heavy soils. It should be borne in mind, however, that the crowns should not be covered to the extreme depth at first, as the young shoots might be smothered before they reach the surface.

For a small home garden, it is best to plant one row across the garden, spacing the plants 15 inches apart in the row. If more than one row is necessary, the rows should be 3 feet apart, so that cultivation can be accomplished by means of horse or hand cultivators. Asparagus should be planted at one end or one side of the garden, where it will interfere the least with the plowing and preparation of that part of the garden used for annual crops.

CULTIVATION OF ASPARAGUS.

During the first season a crop of bush beans, peas, early cabbage, radishes, lettuce or some other hoe crop may be planted between the rows of asparagus. Tall growing or long season crops should not be grown with asparagus. The cultivation required by the asparagus will be sufficient for most of the companion crops, and the return from such an intercrop should go a long way toward paying the cost of growing both. Frequent shallow cultivations should be given to keep down weeds and to conserve the soil moisture. Some hand hoeing may be necessary to keep the soil loose and to control the weeds between the asparagus plants in the row.

After the plantation has become established the soil should be thoroughly disked every spring. With the present almost universal demand for green asparagus, the high ridging system of cultivation is rapidly going out. Level cultivation or low ridging is the most approved method now followed by the best growers of green asparagus.

DURATION OF A PLANTATION.

The length of time an asparagus plantation will produce profitable yields depends upon the treatment it receives. A well-established bed which received good cultivation and fertilization each year should produce profitable crops for 15 to 20 years. In practice, however, it is usually found desirable to renew the plantings every 8 or 10 years. When an old asparagus plantation produces nothing but small, spindling shoots it should be plowed up, a new bed having been started some years previous in another location.

HARVESTING AND PACKING.

During the first year of an asparagus plantation no shoots should be removed, but at the beginning of the second year some of the crop may be harvested. Even during this season the cutting should be short, as it is important to have large, well developed crowns for the production of good asparagus.

Asparagus is usually harvested every day during the season, preferably in the morning; and when growth is very rapid it is often necessary to go over the plantation twice a day. The cutting is done with a chisel-like knife made especially for this purpose. In cutting, one takes hold of the end of a shoot with the left hand and with the right hand inserts the knife to the desired depth, severing the shoot with one diagonal downward stroke. Care should be exercised to avoid injuring other spears. After the spear is cut it is placed in a basket carried by the person doing the harvesting. As soon as the basket is full, it should be taken to the packing-house and the asparagus bunched as soon as possible.

If white asparagus is desired it is necessary to cut the shoots just as they force their way through the surface of the soil, as they become green on exposure to the air. In harvesting, white shoots are cut several inches below the surface of the soil. For green asparagus the shoots are cut a little below the surface of the ground.

As asparagus loses its quality quickly after it is harvested, the gardener who can put his product on the market within a day or two has a decided advantage over the grower living a long distance from the consuming center. For the very highest quality, asparagus should be cooked within a few hours



Fig. 8—A two-pound bunch of Fancy Pedigreed Washington Asparagus, about half natural size, to illustrate the method of preparing a bunch of asparagus for a high grade market.

after being cut; but this, of course, is impossible except where it is produced at home.

The shoots are usually taken to a packing shed, where they are graded, bunched, and packed (Figs. 8 and 9). Some growers wash the shoots by dumping them into a tub or tank of water and stirring them a little by hand. They are then sorted into two or three grades, fancy or extra, primes and seconds. The fancy, or extra, grade consists of large straight shoots of good length; primes are smaller shoots, but may be as long as the fancy grade; seconds consist of short or slightly deformed shoots. After separating the shoots into the different grades they are placed in a bunching machine with the heads all one way, only one grade being put into a bunch. When the bunching apparatus is full, the metal clamps are closed by means of a small lever (as shown in Fig. 5), and the asparagus is tied at each end with tape, raffia or similar material. The butts are cut off evenly with a sharp knife and the bunches are

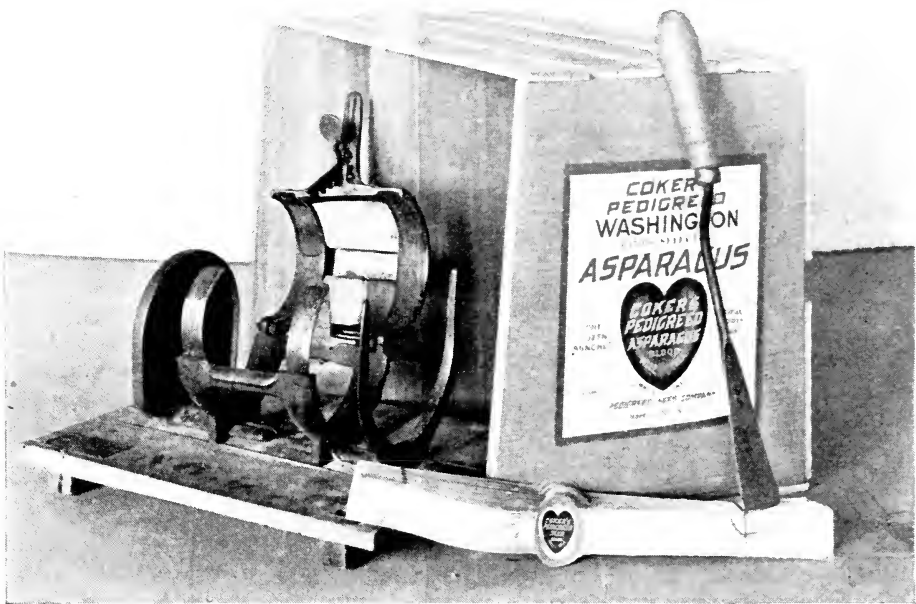


Fig. 9—Satisfactory types of asparagus buncher and asparagus knife, with the crate used to ship ten-inch bunches of our Fancy Asparagus. The package of bands in front is used in labeling each bunch.

often temporarily placed upright in a shallow tray containing about an inch of water. All the shoots in a bunch of extras or of primes should be uniform in size and appearance. For a local retail trade it is an advantage to put up asparagus in small bunches that will retail at 5 to 10 cents.

To get the best returns from fields of the new strain Washington Asparagus, they should be marketed as Washington Asparagus. The bunches and packages should have neat labels with the variety and the grower's names. The grading should be carefully standardized and persistently maintained. A permanent reputation for high quality and honest grade pays in net profit. The consumer's demands as to quality, size, and freshness should be met, and he should be made to feel that the new strains are developed to best suit his needs. Other strains should not be mixed in with Washington asparagus and sold as the new stock;

PEDIGREED SEED COMPANY

PERMANENT PRICE LIST
Pedigreed Washington Asparagus
Spring 1921

SEED

Pedigreed Washington Asparagus seed--Prices Postpaid; Packet 25¢; 1 ounce 40¢; 1/4 lb. \$1.25; 1/2 lb. \$2.25; 1 pound \$4.00; 5 lbs. and above \$3.00.

Reselected Pedigreed Washington Asparagus Seed. Prices Postpaid: Packet 30¢; 1 ounce 50¢; 1/4 lb. \$1.75; 1/2 lb. \$3.00; 1 pound \$5.50; 5 lbs and above \$5.00.

Pedigreed Mary Washington Asparagus Seed. Prices Postpaid: \$1.00 an ounce, Not more than one-half pound to any one customer.

ROOTS

Pedigreed Washington Asparagus Roots--Prices not prepaid: 50--\$1.35; 100--\$2.50; 500--\$10.00; 1000--\$16.75; 2000 and above at \$15.00 per thousand.



neither should the grower lose the advantage to be gained by selling the new kinds separately under their variety names.

The asparagus should be packed for shipment as soon as possible after it is bunched. Several different types of packages are used for asparagus, but the standard California crate (Fig. 10) has made such a good impression on the market that the other types are rapidly disappearing.


In shipping asparagus to different markets we have sometimes found it advisable to modify the ordinary crate somewhat by making it deep enough to take a ten-inch bunch of fancy green asparagus. With our selected strains these ten-inch bunches make an attractive package with a higher percentage of tender green shoots than any ordinary sort will produce. The inside dimen-



Fig. 10—A standard asparagus crate used for one dozen, eight-inch bunches.

sions of the ordinary crate we use for eight-inch bunches are: height, 10½ inches; bottom, 11 by 18½ inches; top, 9½ by 18½ inches. For the ten-inch bunches the height inside is 12½ inches. The accompanying illustrations show the general method of the construction of these crates. These crates can usually be bought on special order from nearby firms that make a specialty of shipping packages for truck growers.

Where asparagus is to be shipped long distances it is a common practice to put a light layer of moist sphagnum moss in the bottom of the crate. This gives a supply of moisture that tends to keep the bunches in good condition while enroute and at the same time does not give enough to allow the shoots to grow and spoil their appearance. The bunches themselves should be shipped dry, as moisture in the center of the package is apt to cause rotting.



OUR SALE STOCK OF PEDIGREED WASHINGTON ASPARAGUS SEEDS AND ROOTS

Our Pedigreed Washington Asparagus is based on the best strains produced by the U. S. Department of Agriculture, in their rust-resistant asparagus breeding work. The plants in our seed growing fields were selected personally by the Bureau of Plant Industry's asparagus expert. The originator of the pedigreed method of asparagus breeding, Professor J. B. Norton, is now in personal charge of our asparagus work.

The seed stock we offer is from the same plants from which our commercial fields are grown, from which we supply the fancy trade in the Northern markets. Our one-year-old roots are the best in quality and pedigree that can be secured anywhere. They are grown on ideal land and are carefully selected under the immediate supervision of our expert breeder.

We are practically the only growers who have only Washington asparagus on our farms. There is no opportunity for mixing with the inferior strains usually found in all other asparagus seed growing regions. You can only secure pure Washington asparagus from pure Washington asparagus fields with no Argenteuil, Palmetto, Reading Giant or other inferior strains nearby.

We are prepared to furnish seed of the highest quality of Pedigreed Washington Asparagus, Reselected Rust-Resistant Washington Asparagus and Pedigreed Mary Washington.

We also are prepared to furnish fine one-year-old roots of Pedigreed Washington Asparagus in moderate quantities. This is the best stock that can be obtained anywhere. We ship only the large, vigorous, well-developed roots.

Write for Price List or quotations on quantities desired.

PEDIGREED SEED COMPANY
HARTSVILLE, S. C.

